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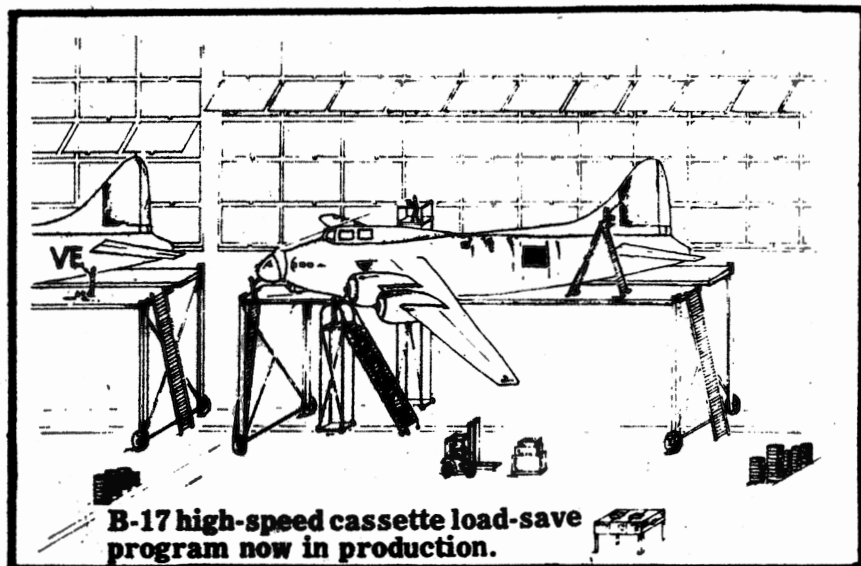
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# S-80 Bulletin AND CLASSIFIED

Vol. 2 No. 1

Bill McLaughlin, editor

January, 1980



‘Standard’ tape  
can now  
reliably load  
at 2K-baud

SEE INSIDE

\$239 Device doubles disk capacity  
to 204K bytes 40-track: 394K 77-track

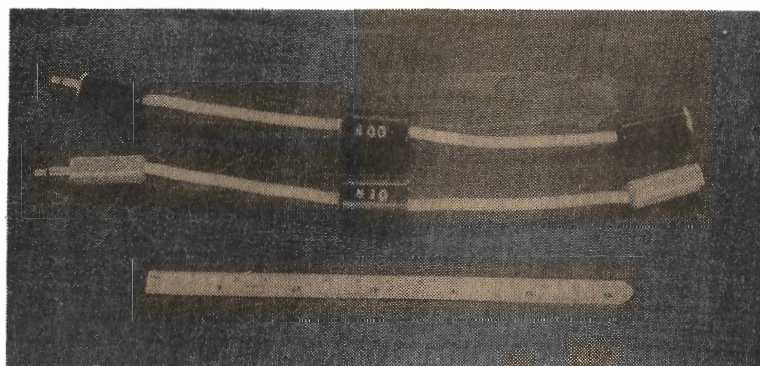
SEE INSIDE

High-resolution color graphics  
now available for TRS-80

SEE INSIDE

\$12.95 Cord  
solves  
tape-load  
problems

SEE INSIDE



## Some Common Basic Programs

By Lon Poole  
& Mary Borchers

...Is designed for people who can use a variety of practical Basic programs. The 76 programs are written in a restricted version of standard Basic and are compatible with many versions of Basic now available to microcomputer users. Program descriptions, examples, and remarks accompany the listings to help the reader follow Basic programming logic. All programs from this book are also available on cassette from People's



## Structured Programming and Problem-Solving with PASCAL

By Richard B. Kieburtz

This book is an introduction to problem solving by computational methods. If it helps you learn how to specify the requirements for a solution, how to formulate, one step at a time, a procedure to follow in generating a solution, and how to describe that procedure so that it may be understood by others, then it will have succeeded in its purpose. For the reader with some experience in computing, who seeks an introduction to the notation of Pascal, Chapters 2 through 8 will satisfy his needs, although the programming techniques and applications of the remaining chapters should also be of interest.

## TRS-80 Interfacing, book I

By Dr. Jon Titus

Details hands-on experiments in the use of the various signals and buses to design interfaces for transferring information or control signals between the TRS-80 and external devices. Uses BASIC, not assembly language programming, and an inexpensive breadboard to access the TRS-80 bus. Another in the Blacksburg Continuing Education Series by the authors of the BUGBOOKS. Write for information on the series.

## TRS-80 Disassembled Handbook

By R. M. Richardson

Will revolutionize assembly-language programming for TRS-80. Its very unique concept begins with a number of short demonstration programs that derive for the user all Basic functions' CALL addresses in ROM plus a number of chapters demonstrating their use in simple assembly-language programs. After digesting book, reviewer was able to write double-precision arithmetic, trigonometric, log, exponent, etc. program in minutes, with only a few lines.



## The BASIC Handbook an Encyclopedia of the BASIC Computer Language

By David A. Lien

This book is unique. It is not a textbook, it is far more than a dictionary. It is a virtual encyclopedia of the Basic language. While not favoring one computer over another, it explains over 250 Basic words, how to use them, and alternate strategies. Since over 50 computers are represented, it is likely to be of help in making about any Basic program run on TRS-80.

## Learning Level II

By David A. Lien

Learning Level II picks right up where the Level I TRS-80 User's Manual left off. Written by the same author, it teaches Level II Basic, plus the many command features, in the same easy-to-learn style that made the Level I Manual famous. Each CompuSoft Learning Series book is carefully planned and written by Dr. Lien, prominent educator and master teacher with many years' experience in private technical schools, public colleges and universities. Author of books in a variety of technical areas, his most widely-known work to date is the TRS-80 Level I Users' manual, with hundreds of thousands of copies in print.

### PEOPLE'S SOFTWARE:

( ) **Tape 7, Lev. II**, 32 programs, \$8 (\$8.45 in CA).

### BOOKS:

( ) **TRS-80 Disk & Other Mysteries**, by H. C. Pennington, \$22.50 (\$23.85 CA)

( ) **Introduction to TRS-80 Graphics**, by Don Inman, \$8.95 (\$9.49 CA)

( ) **TRS-80 Disassembled Handbook**, by R. M. Richardson, \$10 (\$10.60 CA)

( ) **Basic Handbook**, by Dr. David A. Lien, \$14.95 (\$15.85 CA)

( ) **Learning Level II**, by David A. Lien, \$15.95 (\$16.91 CA)

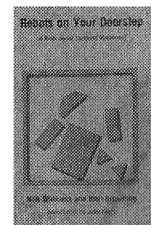
( ) **Incredible Secret Money Machine**, by Don Lancaster, \$5.95 (\$6.31 CA)

( ) **Software Design for Microcomputers**, by Carol Anne Ogden, \$8.95 (\$9.49 CA)

( ) **From Dits to Bits**, by Herman Lukoff, \$12.95 (\$13.73 CA)

( ) **QWIKTRAN**, by C. Kevin McCabe, \$9.95 (\$10.55 CA)

( ) **Robots on Your Doorstep**, Winkless & Browning, \$6.95 (\$7.37 CA)



## Robots on your Doorstep (A Book about thinking Machines)

By Nels Winkless and Iben Browning

Introduction by John Peers

Have you always thought of robots as the product of a massive, expensive effort of some superagency like NASA, with its hordes of whitecoated scientists? Times have changed, and robots are now more likely to be assembled on the amateur's kitchen table than in a giant laboratory.

Following an introductory chapter is a chapter titled "Robotics in Context", which carries us back to those thrilling days of yesteryear, the mid-1950s, when a young research engineer in a weapons laboratory first developed a systematic description of the physical universe into which robotics was rationally fitted as an identifiable discipline. The book continues with several letters in the Conrad correspondence, a tutorial narrative that gradually reveals the design of an artificial intelligence system, a discussion of intelligence, brain structure and brain simulation. The characteristics of robots are also discussed.

## ORDER FORM (cont. from p. 1)

## INCREDIBLE SECRET MONEY MACHINE

By Don Lancaster

The Incredible Secret Money Machine is your own small-scale computer, technical, or craft business. You'll find this cookbook and guide essential to give you the key insider details of what's really involved in starting up and going with your own secret money machine.

Another one of those get-filthy-rich-in-five-minutes-of-your-spare-time books? Hardly. First, the author has been there, is there now, and knows whereof he speaks. Secondly, instead of the usual outrageous promises, Lancaster simply shows realistic and proven ways to reduce taxes, never pay a utility bill, to profit on "investments," to get free and even paid-for vacations, to get totally free insurance, to have others pay you for your fun, and to show you the ultimate solution to start-up financing.



## RUNNING WILD: The next Industrial Revolution

By Adam Osborne

Within the next decade, roughly half of today's jobs will change drastically, or disappear altogether; robots will take over assembly-line jobs from blue collar workers; microelectronics devices will perform many white collar duties as well. New technology will usher in the miracles of bionics; it will increase communications and, possibly, make real every man's dream of more leisure than labor. At the same time, microelectronics will open new horizons for computer crime. Will the coming years prove to be a dream or a nightmare? Understanding the facts of microelectronics' advancements could make the difference. Running Wild has been written for the layman, to educate and help prepare today's citizen for the coming 25 years.

# BOOKS from CIE

## TRS-80 Disk & Other Mysteries

By Harvard C. Pennington

TRS-80 users, this is not only a worthwhile book but a great book. It's great for two reasons: It presents information on TRS-80 disk organization and file management that can be found nowhere else! Secondly, it is available when you need it—now! The book discusses how disks are organized, how space is allocated, how files are located on disk, and the tools that one may use to look at disk files and directories. Not only does it provide a general discussion of these topics, however, but it also gives clear information on how to fix disk problems such as lost files, Electric Pencil bugs and other snafus. This is a clearly-presented book packed with good disk information—Wm. Barden Jr.



## From Dits to Bits: A personal history of the electronic computer

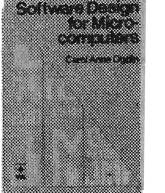
By Herman Lukoff

In From Dits to Bits the reader is given a very personal look behind the scenes at the Moor School at the University of Pennsylvania. There, in the late 1940s, a group of young scientists struggled in their quest to devise a technology that could one day relieve man of the burdens which so encumbered his imagination and wasted his free time. This book says, perhaps above all other things, that the roots of this technology are grounded in motives and ideas as altruistic as those of any artist. Here are recounted the problems, successes and failures experienced by the author as he worked alongside John Mauchly, Presper Eckert and a number of others who are today recognized as the prime innovators in this field. This is the story of the people whose efforts and imagination gave birth to man's most significant extension of his own potential—the computer.

## Software design for Microcomputers

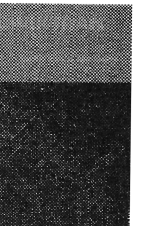
By Carol Anne Ogden

Emphasizes software design which must precede its implementation. Software is presented as a bonafide discipline, rather than a loose collection of tricks and gimmicks. Although presentation of theory is avoided, sound theoretical principles underlie the entire presentation. Up-to-date techniques are provided, among them structured programming and contemporary management techniques. Many realistic examples of specific software design strategies are provided. A Pascal-like design notation and Basic-language coding are both used at different stages. Emphasis is balanced between the design and data structures and the design of procedure structures.



## QUICKTRAN: Quick Fortran Programming...By C. Kevin McCabe

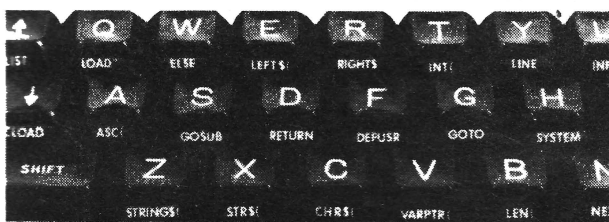
This book is written by a user, for a user. The book emphasizes simplicity without sacrificing utility. No knowledge of electronics, data processing, or math beyond algebra is assumed or required. The text is divided into three parts. The first presents the most elementary Fortran statements. This may well be enough to permit you to modify "canned" programs and do other simple programming tasks. In the second part you will become fully acquainted with the language, including such things as subprograms, character manipulation, automatic logre and arrays. The last part picks up the odds and ends.



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- \* DOS version loads to and executes from disk via TAPEDISK
- \* Features self-entering commands, i.e. CONT; GOTO10; KUSTOM
- \* TSHORT with four page instruction manual . . . . . \$9.95

**TSEL™** — We'll convert your IBM SELECTRIC to a high quality printer —  $\mu$ p control — 512 character buffer — special TRS-80 cable with custom control switches — complete and ready to LPRINT (cleaning and minor service included) . . . . . \$795.00 (Options and shipping extra — call or write for special shipping instructions)

**TLEC™** — EPROM and cable interface kit for your IBM ELECTRONIC 50 or 60 — comes with custom control switches, installs in minutes. . . . . \$289.00

**TBEEP™** — For LEVEL II and DISK USERS — A self contained audio alert beeper with a pager-like tone. A simple BASIC program commands it to beep, i.e.: OUT 255, 1: FOR I=1 TO 300: NEXT: OUT 255,0. Plugs in-line with "AUX" cable from your TRS-80 (Requires 9V Battery) . . . . . \$ 19.95

**TBUFF™** — For LEVEL II CASSETTE USERS. Eliminates, once and for all, cassette relay sticking. Plugs in-line with the "REMOte" cable between your TRS-80 and cassette recorder. (Specify cassette recorder make and model) . . . . . \$ 9.98

**TPAK™** — Pack of 10 C-10 blank tape cassettes with box and blank labels. (AGFA 611 tape, the best money can buy) . . . . . \$ 12.95

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## high-speed 2K-Baud cassette operation

While many of us mortals are still having trouble loading and CLOADing TRS-80s at the Tandy-standard 500 Baud rate, some brave souls are offering programs to speed this up to more than 2K Baud.

One of these programs is called B17 and the other is HISPED, and they are from ABS Suppliers, Ann Arbor MI, and Palomar Software, Redwood City CA, respectively.

B17 came to our attention first, so here is what we know about it: for \$25 a buyer receives a cassette with six programs, which include the 4, 16, 32 and 48K Basic modules, and high and low SYSTEM modules. ABS Suppliers feels these six modules give the user complete flexibility by allowing B17 operation in any hardware configuration.

B17 users are treated to a new visual status indicator which allows them to "see" the optimum cassette load volume. It also "flows" in two directions showing at a glance if data is being input or output.

Basic programs can have a name of up to six character—a feature which allows more-meaningful names than the Radio-Shack "A", "B", etc. ABS says all modules contain extensive error-trapping routines making use of B17 a "snap".

The two SYSTEM modules give the user the flexibility to work with machine-language programs residing in various memory areas. A unique feature of the SYSTEM modules is the load-and-go option which allows the user to create 2125-Baud programs that will start to execute automatically after loading in.

All the support software needed to Load, Save and Verify is written out along with the program. Grafting the B17 onto the Basic program eliminates the need for extra software support, according to ABS Suppliers. It is always resident when the user reads programs into the computer.

Radio Shack's cassette modification, the XRX-2, locks-out high-speed cassette operation. ABS Suppliers in its documentation shows how to defeat XRX-2 by installing a single subminiature SPDT switch (RS 275-613) and three 10" wires.

ABS Suppliers is licensing software vendors to use the B17 system. Vendors should write the firm, Box 8297, Ann Arbor MI 48107. Dealer inquiries also are invited, and discounts of 50 per cent are given orders of 50 or more programs.

**AND NOW 'HISPED'**—Which is a rapid data-transfer program designed to increase the tape speed of the TRS-80.

To give an idea of what HISPED can do, data in arrays can be saved to tape at a rate of 10,000 bytes in just 60 seconds—something that takes the Radio Shack ROMed system 35 minutes, using PRINT number-sign.

Assuming no XRS-2 cassette modification, HISPED does not require any hardware modifications.

HISPED will save, verify and load Basic commands at a data rate of 166 characters-per-second. (Remember, Baud is the bit rate. Radio Shack's "500 Baud", which Palomar says is really 1K Baud, transfers 63.25 characters per second. HISPED offers options of 160, 212, 233 and possibly higher characters-per-second transfer—the higher speeds requiring better equipment and tapes.)

Good-quality data recording tape and clean tape heads are a must, according to Palomar ("dime-store tape does not work very well).

From ACCESS UNLIMITED. . .

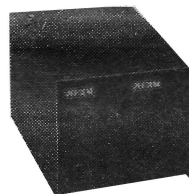
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TFD-100™ (40-track)	
One-Drive Add-On . . . . .	\$ 374.95
Two-Drive Add-On . . . . .	749.95
Three-Drive Add-On . . . . .	1124.95
TFD-200™ (77-track)	
One-Drive Add-On . . . . .	\$ 634.95
Two-Drive Add-On . . . . .	1268.95
Three-Drive Add-On . . . . .	1903.95

Price includes Percom PATCH PAK™ described elsewhere in this ad.

### Disk System Interconnecting Cables

Improved design places drive 0, which includes the cable termination, at the end of the cable — not in the first position like the RS design — to eliminate the reflected noise of an unterminated cable and thereby improve data and control signal integrity. Prices:

Two-Drive Cable . . . . .	\$ 24.95
Four-Drive Cable . . . . .	34.95

### Power Line Filter

Eliminates switching spikes and other noise caused by equipment sharing the TRS-80\* ac power line. Also reduces TV interference caused by the TRS-80\* 115/250 V, 50-400 Hz. Instructions for easy installation in standard aluminum mini-box chassis. Price . . . . . \$ 19.95

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These data cassettes provide orders-of-magnitude improvement in data integrity over ordinary audio cassettes. Features include a pylon-coated pressure pad which eliminates lint and minimizes erratic tape motion, and an energy-absorbing foam pad that is superior to a leaf-spring-mounted pad which tends to oscillate and cause fluttering. Five-screw case virtually precludes deformation during assembly.  
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### How to Order

Order by calling Access Unlimited toll-free on 1-800-527-4196†. Mail orders also accepted. Orders may be charged to a VISA or Master Charge account, or paid by a cashier's check, certified check or money order. We accept C.O.D. orders with 25% deposit. Sorry, we cannot accept personal checks. We pay shipping and insurance charges on orders over \$1,000.00. Add approximate insurance and shipping charges for under \$1,000.00. If in doubt about these charges, ask when you call in your order. Texas residents include 5% sales tax. Minimum order: \$20.00. Allow 2 to 4 weeks for delivery.  
†Texas residents call (214) 494-0206

Prices and specifications subject to change without notice.



**HISPED FORMATTING CAPABILITY**—The program also features single-keystroke commands for hardcopy printing. The user does not, however, need to have a printer to use the tape-load part of HISPED.

The printer-control features of HISPED will work with the standard parallel-output line printer, to printers connected to the expansion-interface RS232-C port, and to printers using a serial output from port 255, the tape port.

### Printer control features are:

- o automatic carriage return-line feed (to print long program lines)
- o indent of lines following automatic line-feed and carriage return (which makes it easier to read Basic programs with long lines)
- o automatic page spacing
- o automatic line spacing
- o screen echo (print both to screen and to hardcopy)
- o all print parameters are user-changeable

Also included in HISPED is a "keyboard filter" to prevent key bounce. It is \$24.95 from Palomar Software, 170 S. Palomar dr., Redwood City CA 94062.

This report was compiled from a preliminary draft of the instructions. At last contact, Ernie Klein, HISPED author, was considering a 75 per cent optional speedup. That figures to 10,000 bytes in 20 secs!

Ernie feels that Level I was designed impossibly slow to ensure sale of Level II ROMs, and that Level II was made as slow as it is simply to get the ball rolling with disk. He sees his job as one of taking the padding out of Radio Shack's cassette utility.

Oh, yes—how did B17 (gotta back up a bit to the other guy) get its name? A long time back—couple weeks ago—ABS was spec'ing it at 1700 Baud. Next week 3600?

(Circle GK on free-information form)



### Disk System Software

**MICRODOS™** an advanced, easy-to-use operating system for TRS-80s\* using Percom disk storage systems, works entirely with

Level II BASIC commands. MICRODOS™ replaces primitive TRSDOS\*. is more powerful and faster, yet resides in only 7K bytes of RAM. Up to 10 user-defined functions may be added to existing functions, and hexadecimal constants may be used in expressions. MICRODOS™ is supplied on a system minidiskette that also includes three self teaching BASIC language programs: (1) a file management program, (2) a disk utility program — illustrating how disk utilities may be written with only a few BASIC statements, and (3) a sample application program. The application program is an expandable, user accessible "notebook" of information about MICRODOS™ BASIC statements. Price \$29.95

**PATCH PAK™** is supplied free (on disk) with the purchase of a Percom TFD-100™ or TFD-200™ PATCH PAK™ extends TRSDOS\* to accommodate 40- and 77-track drives. It also de-glitches TRSDOS\* 2.1. With the patch applied to TRSDOS\* 2.1, interference with disk operations from the TRS-80\* "heartbeat" pulse is eliminated, as is premature stopping of the drive motor during operation — a problem sometimes referred to as "silent death." PATCH PAK™ is applied to your system disk "on the fly" using two drives. Application instructions are included. Price (if sold separately) . . . . . \$10.00

**new DOS, new DOS+** — Disk operating system corrects and improves TRSDOS\* 2.1. Fixes keyboard bounce. Fixes APPEND, LOC and VERIFY. Fixes SYS3 bugs which crash the disk directory, and bugs which cause "Lost Data" errors. Enhancements include: machine language line renumbering program • faster LOAD & SAVE functions • space saving allocation of minidiskette granules • password disable/re-enable capability • validity check of output to disk — and more. new DOS+ also includes these exceptional utilities: Editor/Assembler with tape & disk I/O and output to line printer • disk-based disassembler with output to line printer • SUPER ZAP — Apparat's hex dump utility • Level I ROM located in Level II RAM • LMOFFSET for Tape/Disk transfers — and more. Prices:  
new DOS . . . . . \$49.95  
new DOS+ . . . . . \$99.95

### New! the SEPARATOR™

This PC board plug-in adapter for the TRS-80\* virtually eliminates data read errors (CRC error — Track locked out!) which occur on high density inner disk tracks when clock and data bits are not reliably separated during playback. This problem has plagued many TRS-80\* systems. The SEPARATOR™ is installed in the Expansion Interface without modifying the host system. Caution: Opening the TRS-80\* Expansion Interface may void the limited 90-day warranty. Price . . . . . \$29.95

\* = trademark of Tandy Radio Shack Corporation

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One or more drives. Order entry calculates sales tax, shipping, amount for multiple items. Credit checking, aging, sales analysis, invoices, statements and reports. As opposed to most other A/R, ours can be used by doctors, store managers, etc. MOD-II version \$149.

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16K \$39. 32K \$49. MOD-II \$49.

First word processor specifically designed for the TRS-80 that uses disk storage for text. Written in BASIC. No special hardware and text limit. Use for letters, manuals & reports. 32K version features upper/lower case without hardware change and multiple input text files.

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Fast sort by any field. Multiple labels and reports. 4-digit selection code, new zip code ext., screen input, live keyboard, powerful report writer. MOD-II \$99.

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9-digit alphanumeric key for fast key random access. Reports include order info, performance summary, etc. Calculate E.O.Q. Powerful report writer. MOD-II \$149.

All programs are on-line, interactive, random access, virtually bug free, documented and delivered on disks. MOD-I requires 32K. DOS. We challenge all software vendors to offer low cost manuals so you can compare and avoid those high-priced undocumented, 'on-memory' programs. Send \$5 for a MOD-I manual and \$10 for MOD-II.

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MICRO ARCHITECT

96 Dothan St., Arlington, MA 02174

## Interfacer 2 provides '80 I/O

Interfacer 2 from Alpha Products Co. is designed to enable TRS-80 users to control and sense a variety of external devices.

There are eight output channels and eight input channels. Using these 16 channels, the TRS-80 can switch or control appliances, motors, or solenoids or drive LEDs or sounding devices.

Inputs can sense switch closures, photosensors or logic levels.

Interfacer 2 plugs directly into the 40-pin edge connector on the rear of the TRS-80 keyboard or interface. Control of the inputs and outputs is accomplished by simple Level II Basic INP and OUT statements.

Two of the outputs are SPDT relays, the other six are TTL level. Up to six more relays can be controlled externally.

Two of the inputs are opto-isolated so that varying voltages can be sensed safely. All eight inputs will accept either contact closure or TTL-level logic. Other families of logic can be easily interfaced.

An extensive users' manual includes programs, detailed diagrams and explanations to that the user may start applying Interfacer 2 immediately. Sample programs include an automatic telephone dialer and a digital lock.

Interfacer 2 comes completely assembled, tested and ready to use. Power supply, connector cable and user manual are included. Price is \$85 plus \$3 for shipping and handling, from Alpha Product Co., 85-71 79th st., Woodhaven NY 11421, (212) 296-5916.

## Best Sellers

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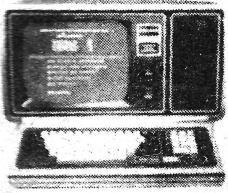
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Vista Computer now has

# double density

Vista Computer Company has announced a box which when used with the TRS-80 expansion interface and Vista disk drives, doubles disk storage capacity.

Called the **VXM-80 Expansion Module**, the device sells for \$239, including all hardware and software.

The **VXM-80** is said to offer a very economical means of increasing storage capacity. Total storage on a 40-track diskette is increased from 102K to 204K bytes. A two-drive system with **VXM-80** expansion module can provide the same storage capacity as a single-density four-drive system—at significantly-lower price.

Used with a four-drive system, the **VXM-80** provides 816K-bytes of storage for less money than a TRS-80 four-drive system with only 359K bytes.

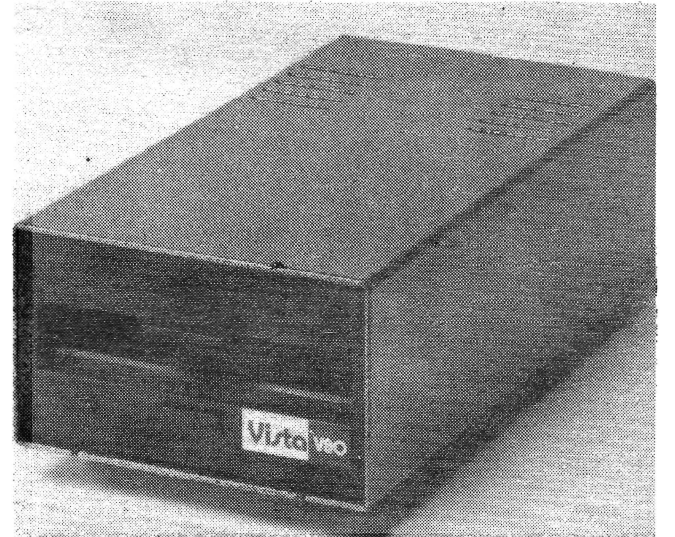
**DENSITY CHOICE**—With the **VXM-80**, diskettes may be formatted in either single or double density. Vista says its expansion module is designed for use with its V-80 disk drives, and the firm does not guarantee its operation in double-density format with TRS-80 drives.

Vista, a division of Advanced Computer Products, offers single and multiple-disk-drive systems that allow up to 816K-bytes of storage with the Model I TRS-80. The firm says these units are available for immediate delivery. The V-80 can be used in any of the four drive locations (0, 1, 2, or 3), and can be used either alone or in combination with existing TRS-80 drives.

A program patch, supplied at no charge by Vista, will adapt TRSDOS to accommodate the 40-track

drives and their faster access times. These are available for all existing versions of TRSDOS, according to Vista. Cables are available for two and four drives.

For additional information, contact Vista, \$401 Borchard st., Santa Ana CA 92705 (800) 854-8017, or in Orange County call 953-0523.

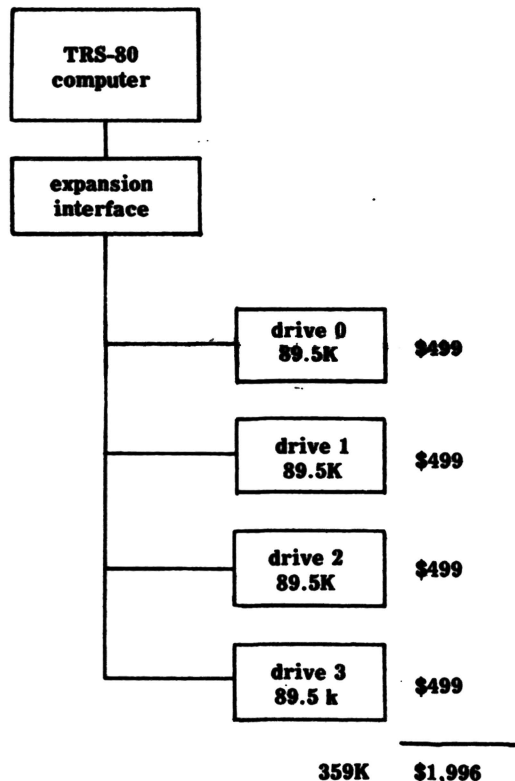


DOUBLE DENSITY available for Vista V-80 drive.

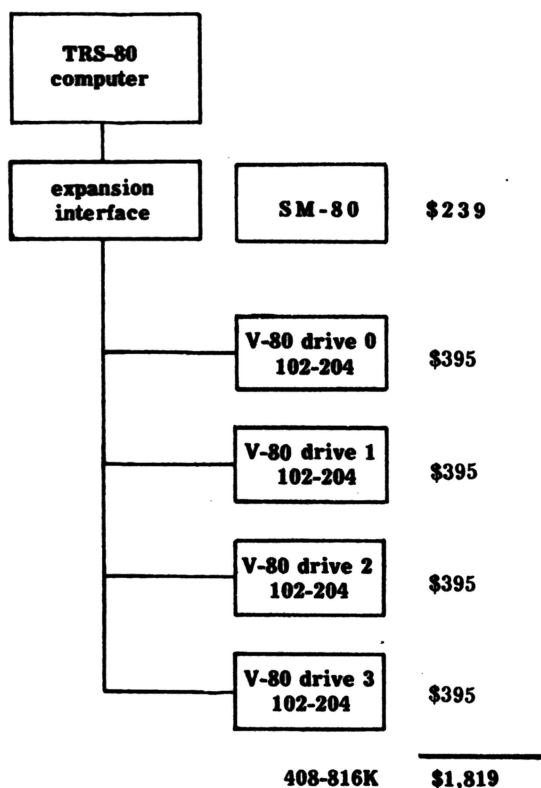
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## Costs Compared

### Radio Shack



### Vista



**MORE FOR LESS**—Vista double-density four-drive V-80 system offers more than twice the storage for less than the TRS-80 price.

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The Vista V-80 mini disk system is 8 times faster than the TRS-80, 23% more storage capacity, and costs only \$395.

Compare our performance to Radio Shack's TRS-80\*. Then match our price with theirs. Then decide which one is for you.

### Features

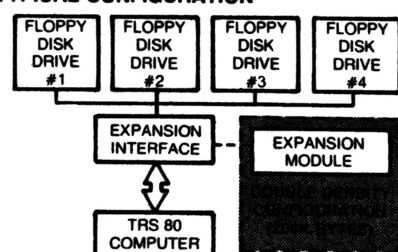
- Vista offers 102K bytes to Radio Shack's 89K. That's 13K more bytes per drive for Vista.
- The V-80 operates at 12ms versus 40ms for TRS-80. Our drive can operate at 5ms, but only 50% of TRS-80 will operate at that speed; therefore, Vista has purposely set the access time at 12ms.
- Totally compatible with all available disk operating systems.
- Upgraded system. Increased storage and speed patch supplied at no charge by Vista.
- Drives are interchangeable for any location from Drive 0—thru Drive 3.
- Immediate Delivery.
- **120 Day Warranty**

### Prices:

Single Drive System .....\$395  
 Two Drive System .....\$770  
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### TYPICAL CONFIGURATION



Single Density Configuration (102K Bytes)



The Vista Computer Company 1401 Borchard Street • Santa Ana, California 92705 • 714/953-0523

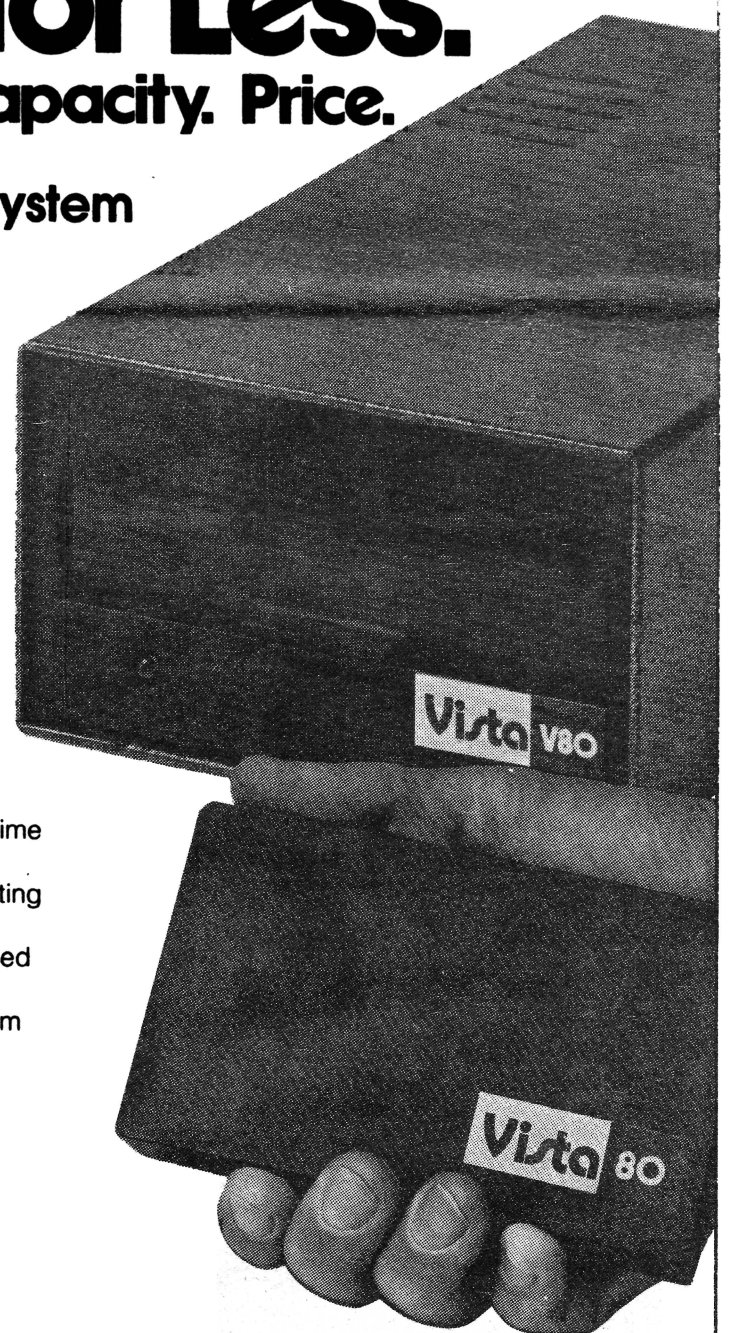
### Vista Expansion Module

The expansion Module provides a double density modification to your current Radio Shack interface that allows you to format diskettes in either single or double density. In double density format, your Vista Drive increases your storage capacity up to 204K bytes on a single 40-track drive.

To insure the highest performance possible, without compromise, we recommend that you use Vista disk drives in conjunction with our Expansion Module.\* For a demonstration on your system call **TOLL-FREE 800-854-8017**

**Price \$239.00** (includes all hardware and software)

\*Vista cannot guarantee Radio Shack drives to operate 100% in double density.



# SIMUTEK PRESENTS

# ★ TRS-80 ★

## GAMES

### !!! WHOLESALE !!!

#### \*\*\*\*\* PACKAGE ONE \*\*\*\*\*

**GRAPHIC-TREK "2000"** — This full graphics, real time game is full of fast, exciting action! Exploding photon torpedoes and phasers fill the screen! You must actually navigate the enterprise to dock with the giant space stations as well as to avoid Klingon torpedoes! Has shields, galactic memory readout, damage reports, long range sensors, etc! Has 3 levels for beginning, average, or expert players! **INVASION WORG** — Time: 3099, Place: Earth's Solar System Mission: As general of Earth's forces, your job is to stop the Worg invasion and destroy their outposts on Mars, Venus, Saturn, Neptune, etc! Earth's Forces: Androids — Space Fighters — Laser Cannon — Neutrino Blasters! Worg Forces: Robots — Saucers — Disintegrators — Proton Destroyers! Multi level game lets you advance to a more complicated game as you get better! **★ STAR WARS** — Maneuver your space fighter deep into the nucleus of the Death Star! Drop your bomb, then escape via the only exit. This graphics game is really fun! May the Force be with you! **★ SPACE TARGET** — Shoot at enemy ships with your missiles. If they eject in a parachute, capture them — or if you're cruel, destroy them! Full graphics, real time game! **★ SAUCERS** — This fast action graphics game has a time limit! Can you be the commander to win the distinguished cross! Requires split second timing to win! Watch out!

#### \*\*\*\*\* PACKAGE TWO \*\*\*\*\*

**CHECKERS 3.1** — Finally! A checkers program that will challenge everyone! Expert as well as amateur! Uses 3-ply tree search to find best possible move. Picks randomly between equal moves to assure you of never having identical games. **★ POKER FACE** — The computer uses psychology as well as logic to try and beat you at poker. Cards are displayed using TRS-80's full graphics. Computer raises, calls, and sometimes even folds! Great practice for your Saturday night poker match! (Plays 5 card draw). **★ PSYCHIC** — Tell the computer a little about yourself and he'll predict things about you, you won't believe! A real mind bender! Great amusement for parties. **★ TANGLE MANIA** — Try and force your opponent into an immobile position. But watch out, they're doing the same to you! This graphics game is for 2 people and has been used to end stupid arguments. (And occasionally starts them!) **★ WORD SCRAMBLE** — This game is for two or more people. One person inputs a word to the computer while the others look away. The computer scrambles the word, then keeps track of wrong guesses.

#### \*\*\*\*\* PACKAGE THREE \*\*\*\*\*

**POETRY** — This program lets you choose the subject as well as the mood of the poem you want. You give TRS-80 certain nouns or names, then the mood, and it does the rest! It has a 1000-word + vocabulary of nouns, verbs, adjectives and adverbs! **★ ELECTRIC ARTIST** — Manual: draw, erase, move as well as, Auto: draw, erase and move. Uses graphics bits not bytes. Saves drawing on tape or disk! **★ GALACTIC BATTLE** — The Swine enemy have long range phasers but cannot travel at warp speed! You can, but only have short range phasers! Can you blitzkrieg the enemy without getting destroyed! Full graphics — real time! **★ WORD MANIA** — Can you guess the computer's words using your human intuitive and logical abilities? You'll need to, to beat the computer! **★ AIR COMMAND** — Battle the Kamikaze pilots. Requires split second timing. This is a FAST action arcade game.

#### \*\*\*\*\* PACKAGE FOUR \*\*\*\*\*

**LIFE** — This Z-80 machine language program uses full graphics! Over 100 generations per minute make it truly animated! You make your starting pattern, the computer does the rest! Program can be stopped and changes made! Watch it grow! **★ SPACE LANDER** — This full graphics simulator lets you pick what planet, asteroid or moon you wish to land on! Has 3 skill levels that make it fun for everyone. **★ GREED II** — Multi-level game is fun and challenging! Beat the computer at this dice game using your knowledge of odds and luck! Computer keeps track of his winnings and yours. Quick fast action. This game is not easy! **★ THE PHAROAH** — Rule the ancient city of Alexandria! Buy or sell land. Keep your people from revolting! Stop the rampaging rats. Requires a true political personality to become good! **★ ROBOT HUNTER** — A group of renegade robots have escaped and are spotted in an old ghost town on Mars! Your job as "Robot Hunter" is to destroy the pirate machines before they kill any more settlers! Exciting! Challenging! Full graphics!

#### \*\*\*\*\* PACKAGE FIVE \*\*\*\*\*

**SUPER HORSE RACE** — Make your bets just like at the real racetrack! 8 horses race in this spectacular graphic display! Up to 9 people can play! Uses real odds but has that element of chance you see in real life! Keeps track of everyone's winnings and losses. This is one of the few computer simulations that can actually get a room of people cheering! **★ MAZE MOUSE** — The mouse with a mind! The computer generates random mazes of whatever size you specify, then searches for a way out! The second time, he'll always go fastest route! A true display of artificial intelligence! Full graphics, mazes & mouses! **★ AMOEBA KILLER** — You command a one man submarine that has been shrunk to the size of bacteria in this exciting graphic adventure! Injected into the president's bloodstream, your mission is to destroy the deadly amoeba infection ravaging his body! **★ LOGIC** — This popular game is based on Mastermind but utilizes tactics that make it more exciting and challenging — has 2 levels of play to make it fun for everyone. **★ SUBMARINER** — Shoot torpedoes at the enemy ships to get points. Fast action graphics, arcade type game is exciting and fun for everybody!

#### \*\*\*\*\* PACKAGE SIX \*\*\*\*\*

**29 HOME FINANCIAL PROGRAMS** — Figures amortization, annuities, depreciation rates, interest tables, earned interest on savings and much, much more. These programs will get used again and again. A must for the conscientious, inflation minded person.

#### \*\*\*\*\* PACKAGE SEVEN \*\*\*\*\*

**BACKGAMMON 5.0** — 2 different skill levels make this game a challenge to average or advanced players. (Not recommended for beginners). Looks for best possible move to beat you! **FANTASTIC GRAPHICS**. Plays doubles and uses international rules. **★ SPEED READING** — Increases your reading speed. Also checks for comprehension of material. Great for teenagers and adults to improve reading skills. **★ PT 109** — Drop depth charges on moving subs. Lower depths get higher points in this fast action graphics game. **★ YANTZEE** — Play Yantzee with the computer. This popular game is even more fun and challenging against a TRS-80! **★ WALL STREET** — Can you turn your \$50,000 into a million dollars? That's the object of this great game. Simulates an actual stock market!

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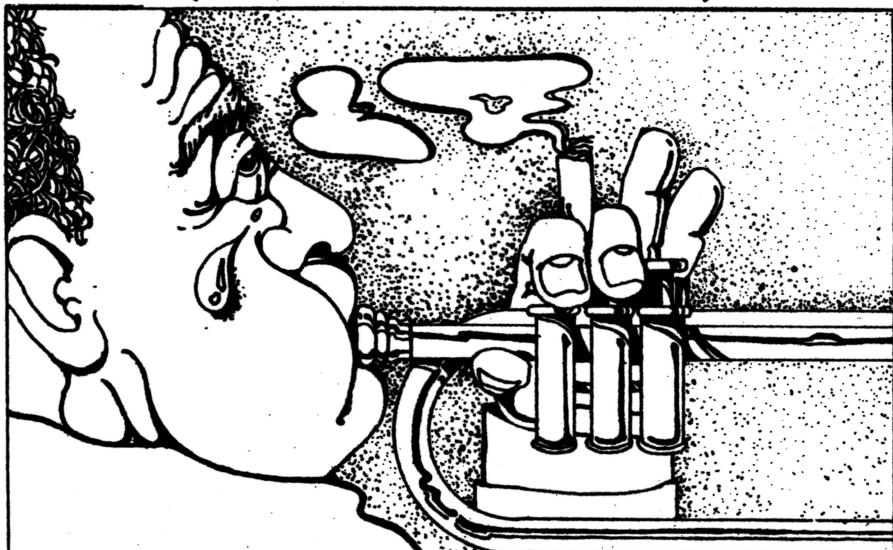
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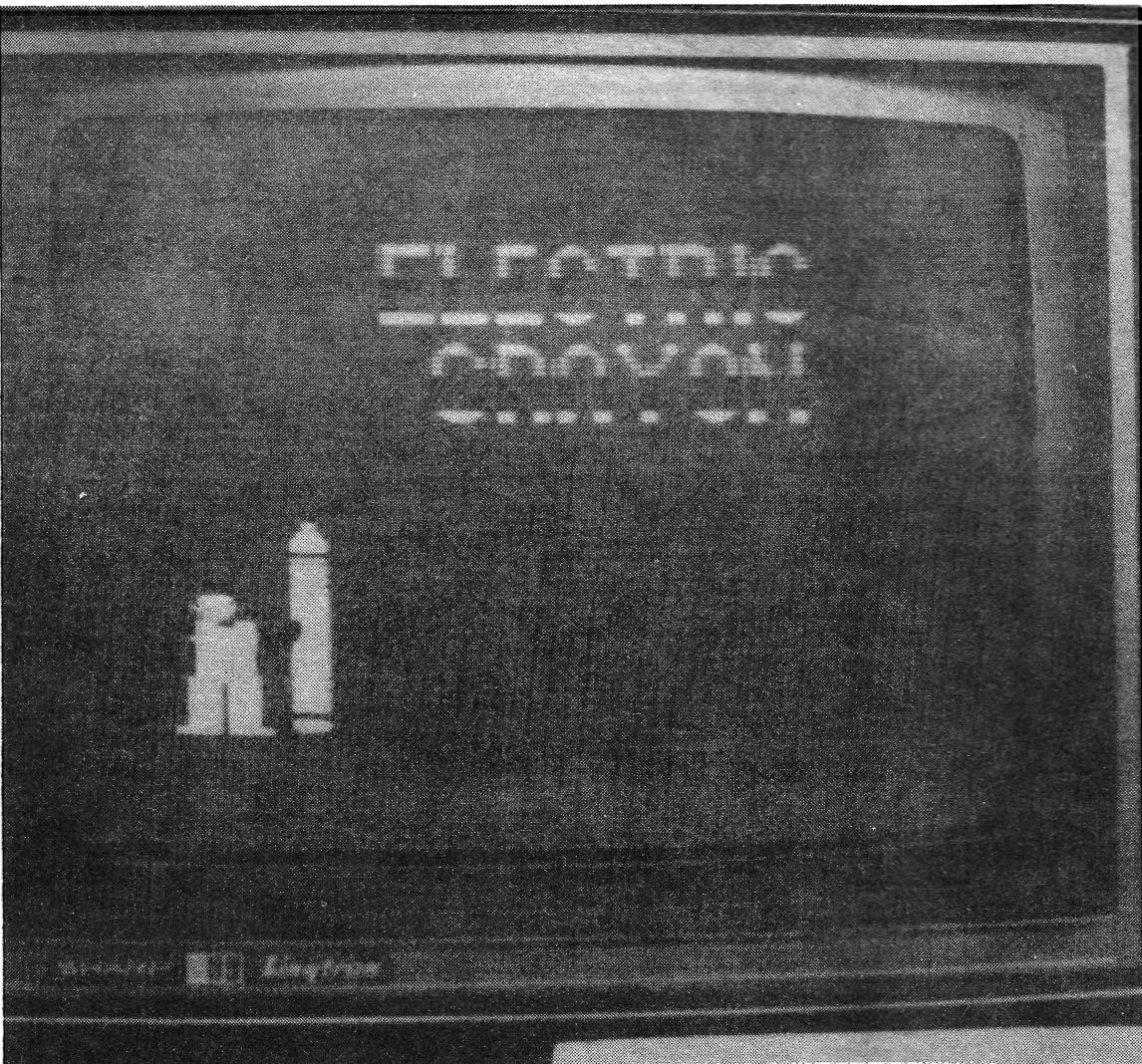


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Device produces color graphics with resolution considerably better than TRS-80's in black & white.

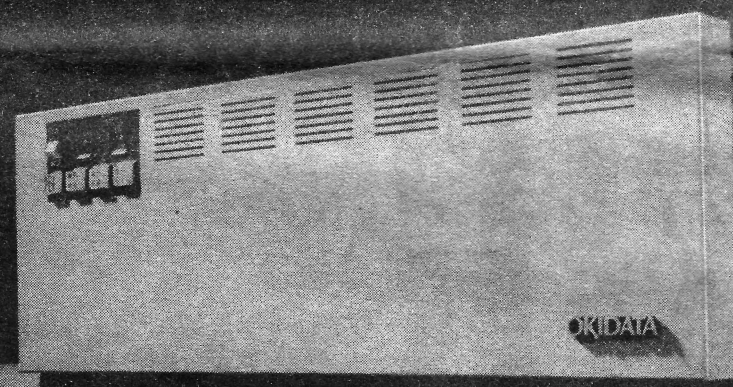
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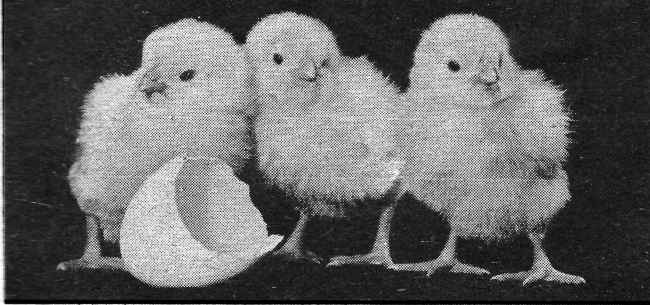
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c**

## Now TRS-80 can have high-resolve color graphics!

People who have felt a little bit uncomfortable when passing an Apple or Tektronix 4027 color graphics terminal can now have color graphics without leaving the comfort of their TRS-80s.

Neither do they have to start brown-bagging or saving trading stamps to pay the \$10,000 price of admission for the Tektronix. Percom Data Company is now in production with its Electric Crayon low-cost, computer-operated color graphics generator-controller.

Electric Crayon was first seen in prototype at the Philadelphia computer fair last fall, where it attracted a great deal of attention. It can be seen at the fifth West Coast Computer Faire March 14-16, at the CIE booth 328, near the front entrance.

Designed to generate color displays on either a tv set or monitor, Electric Crayon includes its own ROM operating system, EGOS, which accepts single-character commands directly from a parallel ASCII keyboard or program-generated commands from a computer.

As shipped, Electric Crayon interfaces a TRS-80 computer, but it may be easily adapted for interfacing to any computer.

Percom expects the system to be used principally for color graphics generation and control, but it points out that Electric Crayon is actually a complete, self-contained control computer with provision for 1K-byte of on-board program RAM, an EPROM chip for extending EGOS and a second dual bi-directional eight-bit port—over and above the dual I-O computer port—for peripherals.

Electric Crayon has 10 display modes including an alphanumeric-semi-graphics mode, a second higher density semi-graphics mode and eight graphics modes. Up to eight colors may be generated, depending on the mode selected.

**RESOLUTION** is 256 picture elements (pixels) by 192, in the highest density mode. This requires a full complement of refresh memory, which is optional.

An internal character generator produces a full 64-character ASCII subset.

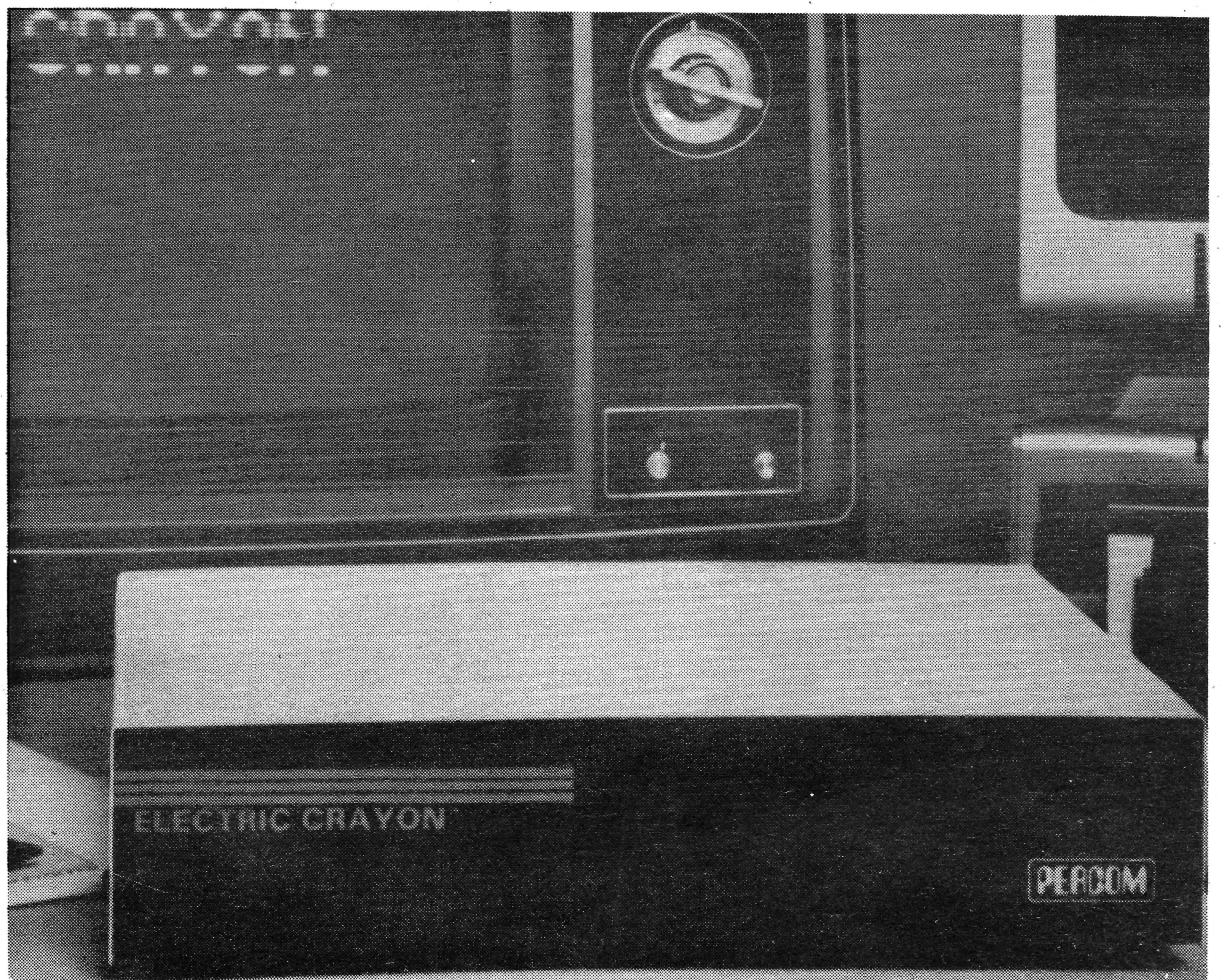
Electric Crayon is packaged in an enamel-finished metal enclosure 2 1/2" high by 9" deep by 12" wide. All connectors and controls are on the rear panel, where the power cable exits. The device connects to TRS-80 via the printer port.

Price with EGOS operating system, 1K-byte refresh memory (up to 6K-bytes supported) for storing characters, and a comprehensive user's manual including description and operating instructions, an assembly-language listing of EGOS and listings of Basic-language demonstration programs is \$249.95.

### Options include:

- o Basic-language color graphics programs on minidiskette, \$17.95
- o A 34-conductor ribbon cable to interconnect Electric Crayon to TRS-80 printer port, \$24.95
- o RAM chips for adding refresh memory for higher density graphic modes (1K-byte included with \$249 purchase, 6K total possible), \$29.95 per K-byte
- o Electric Crayon sketchpad, a sketching grid of proportioned picture elements (pixels) laid out in a 3:4 tv aspect ratio for either 28x192 or 256x192 graphics modes, 25-sheet pads on 11x17" stock, \$3.95 per pad

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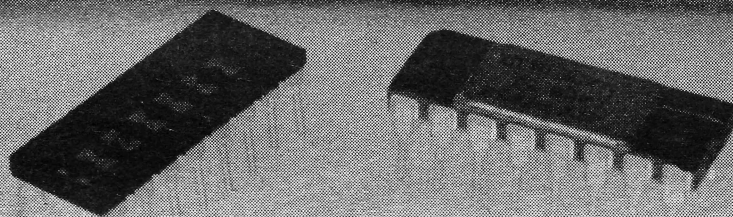
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## E-Z Loader makes your tapes load

(In the past bulletin, we reviewed E-Z Loader and said that it made loading tapes into the TRS-80 easy and certain, but we were unable to copy tapes, recorder-to-recorder, using the device. After publishing that, we installed E-Z Loader in a metal enclosure, and it copied tape-to-tape up to the fourth generation, with the equipment we had available at test time. We now feel E-Z Loader will do everything it is supposed to do. ED)

By PAUL GOELZ and DAVE MILLER

2228 Madison pl., Evanston IL 60602  
Regarding your review, there seems to be some confusion with regard to the real problem involved in loading Level II tapes.

In a stock Level II machine, the problem shows up as a Tape Playback Level problem requiring the operator to be very selective where he or she sets the tape-machine volume control. But this is really only a symptom, not the problem itself. As stated in our original article in 73 Magazine, the real problem lies in the fact that the Level II TRS-80 waits only about 250 microseconds after a pulse before it tests for another pulse. Therefore, if any single pulse is wider than 250 microseconds, the TRS-80 will think that its trailing edge is another pulse and now everything thereafter is out of place from where it should be.

Looking at Figure 1, you will see two sync pulses 2000 microseconds apart shown as solid pulses. They are always present during a load and give the computer a window in which it can test for the absence or presence of a data pulse (dotted pulse) indicating that 0 or 1 should be loaded. As shown in Figure 1, the tip of the data pulse (if 1 is to be loaded) should occur 1000 microseconds into the window.

But what happens if the pulses become wider than 250 microseconds? Since the TRS-80 locks-out for that relatively short time, it will begin loading totally meaningless data. But, you might ask, how can that happen during a CLOAD that's going along fine and all of a sudden starts to load nonsense?

Well, glad you asked. One way would be a momentary tape dropout where the tape loses contact with the pickup head due to a wrinkle on the tape, a bump in the oxide coating (something stuck on the tape) or a depression in the oxide coating (a bad scratch or oxide coating actually flaked off). These, obviously, are all tape problems and nothing much can be done (usually) to help the problem with any device you might be using, alas, not even the E-Z Loader, if the problem is severe (We've seen the digitizers ride over audible dropouts—they're great! ED).

must be less than 250usec, in order to load properly without additional help.

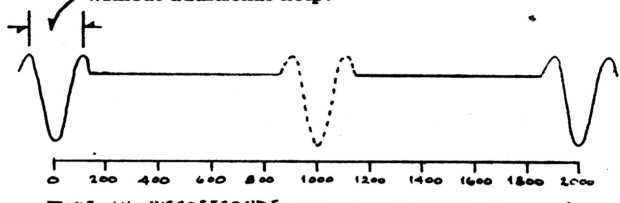


FIGURE 1

OUTPUT FROM CASSETTE MACHINE DURING PLAYBACK.

(Circle AP on free-information form)

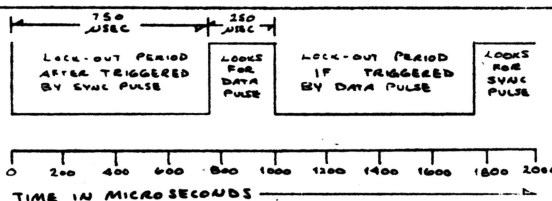


FIGURE 2

LOCK-OUT AND LOOK-FOR-PULSE PERIODS WITHIN E-Z LOADER CIRCUITRY.

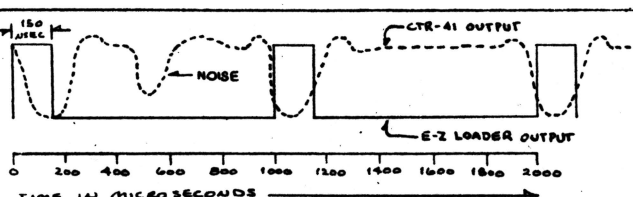


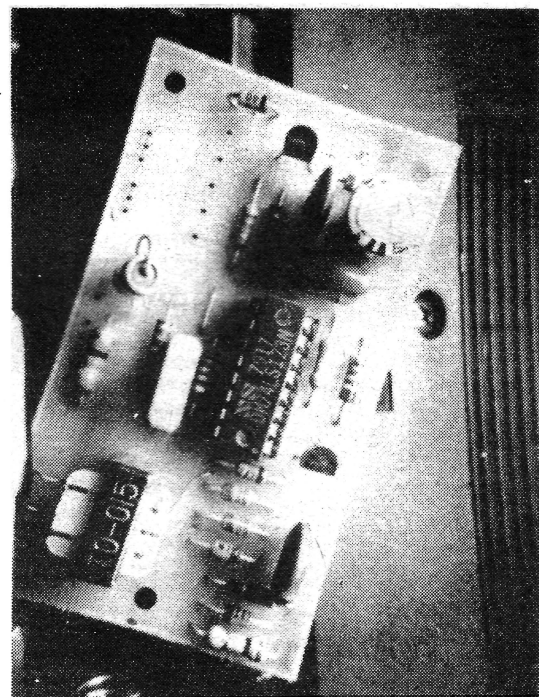
FIGURE 3

OUTPUT FROM E-Z LOADER CIRCUIT BOARD.

### ADVERTISE IN S-80 BULLETIN

No other media offers computer marketers so much for their money: low low rates, heavy-return—and fast turnaround. By special arrangement, we've gotten ads in the Bulletin which didn't arrive until the day we went to the printer. And where else can editorial coverage match the industry's fast-pace of movement?

NEAT PACKAGE—Photo shows how E-Z Loader circuit board neatly slips into the battery compartment of the TRS-80 cassette machine. Power supply components not needed in this application are not used, and filter capacitor is not shown.



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**HEAD ALIGNMENT**—Another way in which the TRS-80 can get out of sync or misinterpret data has to do with recorder head alignment or azimuth. If you put a scope on the output of your cassette machine while playing back a nice long TRS-80 tape, vary the cassette machine's head alignment and see what happens. (Don't do this if you don't have a head alignment tape, or aren't putting the machine in the shop for repair—ED). The pulses widen out tremendously, don't they? Now put our E-Z Loader circuit in the line and do the same thing. The pulse widths don't change at all because the E-Z Loader completely regenerates them into 150-microsecond-wide pulses, regardless of what you put into it. Circuits from others may do the same thing. We haven't tried them, but you really can't stop there.

In the E-Z Loader, a lockout of 750 microseconds occurs before it will even test for another pulse. This helps to eliminate triggering on noise between pulses; without this lockout feature, any simple squaring device is less than complete. Figures 2 and 3 show the concept visually. Note that E-Z Loader triggers on pulse peaks only!

Momentary tape-to-head alignment problems can and do occur due to sticky cassettes, poor pressure-pad tension, lack of sufficient drive power in the tape machine itself, shimmy in the plane-of-tape travel, etc. If the alignment of the tape is marginal to start with (user's deck not aligned with the recording machine), then the above problems are amplified. That is why it is harder to load tapes obtained from other people as opposed to tapes generated by your own system.

Once again, CLOADing difficulties with the Level II TRS-80 are NOT volume-setting problems as much as they are PULSE-WIDTH PROBLEMS.

Also, the computer doesn't care if it receives positive pulses or negative pulses. The circuitry inside of the TRS-80 will decode either, contrary to other published opinions. And it doesn't need or want the little dimple shown before and after the pulses in Figure 1. These are transition overshoots in the recorder.

The TRS-80 DOES want clean, narrow pulses in the right time and quantity, and this is what you should look for in whatever digitizer you decide you would like to try.

With regard to the question of tape duplication using the E-Z Loader, we offer our own experiences. The circuit was first conceived and put into hardware in December, 1978. Both of us have been using it ever since for all of our computer loading operations, including Basic programs, machine-language programs, and tape-to-tape duplication of these programs. Neither of us has experienced any problems using various makes of recorders, except in two instances referred to us by others using the circuit. In both cases, the problem turned out to be line noise being capacitively coupled through the input transformer (apparently due to the particular transformers being used by those two people). Also, in both cases, grounding the mounting mounting frame of the input transformer (T1 on the schematic) and bypassing the shield of the input

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cable to ground with a .05ufd (value not critical) disk capacitor cured the roblem completely. We never experienced this situation with our own units. In fact, our experience with tape-to-tape duplication has been more successful than originally expected.

CIE's comments on being able to obtain the parts more reasonably from any number of different supply houses is absolutely correct. With a little comparative shopping, the knowledgeable builder should be able to cut at least one-third off the Radio Shack bubble-pack prices. The reason we gave Radio Shack stock numbers on everything was because everyone who owns a TRS-80 most likely has access to a Radio Shack store nearby and, thus, a source for all of the parts. We felt that this would ward off some of the fear of building and learning for a few folks. It's very frustrating to become enthused over a project, only to find that you can't lay your hands on everything you need to get it going. Hopefully, we've helped with that hurdle.

It is also true that to build the E-Z Loader, one must have the time and at least the knowledge of basic printed circuit board soldering techniques. Anyone lacking for either should consider buying a ready-made unit from one of the

firms reviewed by your newspaper (Vol. 1, No. 10). Those reviews should prove to be of great help in deciding which unit looks best.

We also recommend that anyone building the E-Z Loader should seriously consider installing it in an enclosure of some sort. The circuit board was intentionally made to a size that would neatly fit into the battery compartment of the CTR-41 tape machine (CTR-80 also works. ED). Power for it can then be "borrowed" (sounds better than "stolen") from the tape-recorder 6V DC bus through a silicon diode (.7VDC drop), and the whole thing makes a nice, neat, inexpensive package. Power supply parts also are eliminated with this scheme and additional savings realized.

Again, if money is no object, and you have no time or basic soldering experience, you would be best advised to look into purchasing a commercially-made unit. When the E-Z Loader was first designed, there was no alternative on the market which is why we submitted it for publication in 73. CIE is absolutely right when it says a digitizer of some sort is definitely necessary for anyone using a Level II TRS-80, and we hope that CIE will review others that appear on the market in the future.

(Circle BV on free-information form)

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## SOFTWARE REVIEW: Graphic Golf

By PAUL SEIDNER

Graphic Golf, \$15.95 from Ken Smallwood, 389 Coral st., Santa Cruz CA 95060.

If you like golf and you want some action during the off-season, this is probably the only decent simulation on the software market.

The instructions, which alone take up 8K of memory, is located on the tape after the 15K main program.

Artificially, you the golfer are at "Small Woods Country Club", where you are on a scenic 18-hole, par-72, 6,840-yard course.

Graphically, you can see the lake, woods, traps and of course, the hole. If you happen to end up in a trap or the woods and you like to cheat, don't worry, just type in that you didn't get caught in a trap or lake, and shoot from that position. Hopefully, if you are like me, you will be honest and not cheat.

To hit the ball, you specify the club and the direction. Usually the ball will go in the correct direction but sometimes it will hit a tree or something that is likely to happen in real golf.

When you get near the hole, the program clears the screen and shows you at a closeup position near the hole.

The program gives you a status report after each hole, comparing your score with par.

It is, overall, a well-rounded computer golf simulation. On the software scale from 1 to 10, Graphic Golf receives an 8.

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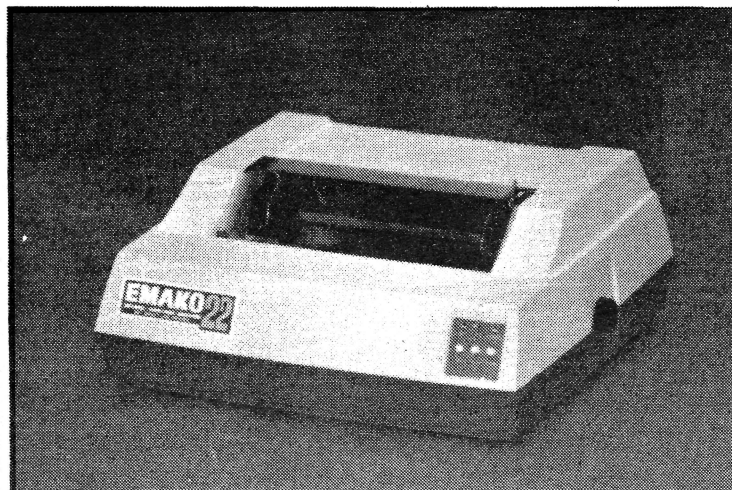
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**COPY PROGRAM**—Computerists tired of switching tapes back and forth might consider **MLCOPY**. It loads on top of ROM, plus 1K of RAM, and reads any other System tape and saves it onto another tape. Thus EDTASM, T-Bug, and other programs can all be on one tape.

**MLCOPY** also can be used to make backups of machine-language tapes.

**Machine-language programmers**, or those wishing to learn machine coding, should find the six-part Basic **DMSOIL** program helpful. With it they can disassemble any part of ROM or RAM, display bytes in hex or decimal, display operand and op-code, and learn which location. Also edit, monitor and more.

all Personal Computer Service software comes with bonus software. **MLCOPY** comes with another System program called Name, which lets a person renumber any part of a Basic program, or change line order. Also included on **MLCOPY** is an editor-assembler written in Basic. It Pokes into RAM a machine language program, and is similar to T-Bug, but gives more information and writes the tape with a Basic **WRITE** command. It is said to be an easy way to use machine language subroutines in Basic.

**Basic3** is priced at \$24.95, **MLCOPY** \$14.95, and **DMSOIL** \$14.95, all postpaid from: Personal Computer Service, \$5\$5 Andrews dr., Las Cruces NM 88001.

### SOFTWARE REVIEW:

## French translator for TRS-80

(TLF-50+, French-English reference-training program, over 140,000 bytes of program and data on two sides of 8" disk, more than 4,500 words in dictionary, 3-6 sec. translation, over 100 phrases, etc., \$40 from P&H Linguistics, 56 Bay State rd., Boston MA 02215—(617) 266-4688)

By PAUL G. SIMARD

Pres., American Business Computers  
Power up and "voilà!"—your TRS-80 now speaks French. P & H Linguistics mailed my TLF-50+ "toite de suite". I was "tout 'a fait heureux", however, when I slipped the diskette into a drive, followed a few ultra-simple instructions and "quelle joie!"—it worked perfectly and flawlessly the first time.

A simple menu selection allows the "eleve" to prompt the TRS-80 in French or English. Ask for the French word for leak and learn that la fuite d'eau is the French equivalent. If there are more than one meanings, all are available.

"Encore!" The grammar section will introduce you to the most comprehensive and well-organized grammar I have seen since the "Lycee". The rules for parts of speech are complete, logical, and "tout 'a fait agreable!". This no-nonsense grammar with its rules and all xception ions for the plural of nouns, for the agreement of adjectives, the use of adverbs, and more, is complete and logical.

"Attention!", you have seen nothing until you witness a TRS-80 conjugate verbs, both regular and irregular, with lightning speed and in all 14 tenses. Not since the scowling of the marquis at the Follies Bergeres has anything been more exciting.

"Enfin!", there are other useful features such as conversions of temperature, currency, weights, lineal, square, cubic, fluid and corn measures. These conversions are helpful without regard to language.

"Concours! Concours!" Inevitably there comes the need to test the acquired skills. This educational experience is no exception. Random drills measure the progress of the student. This master, however, is "tres sympathique" as he hints and tugs until the correct answer is learned. Your score is computed automatically. Full credit is given for all correct answers; no penalty for the hints.

If you own an "ordinateur", you will want this quality program to review your high school French, to help your teenager get the edge and a better grade. Teachers will love this tool in the classroom. It is a quick and exciting way to check for spelling, rules of agreement, plurals, conjugations, syntax, and much more. Students will "quent" for their "chance" to "parlez-vous..."

(Simard holds a master's degree in education from Suffolk University in Boston, and has taught French and Latin in New Hampshire and Connecticut high schools for eight years. Paul has been active in a number of different businesses for the past ten years, two of which have been related to computers. His main interest now is education through computers. Oh, yes, he attended French schools throughout his elementary, junior and senior high-school years. American Business Computers is at 1289 Gold Star hwy (rts 184 at 117), Center Groton, CT 06340.)

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**BOOK REVIEW:  
'Revolutionize' coding**

TRS-80 Disassembled handbook by R. M. Richardson,  
published by Richcraft, Drawer 1065, Chautauqua NY  
14722, \$10 ppd., spiral-bound, 10 chapters, 69pp 8 1/2 x  
11".

By DICK ROBERTSON

4216 Yuma st NW, Wash. D.C. 20016

Here is a small 10-chapter handbook that will revolutionize assembly-language programming for all microcomputers that utilize the widespread Microsoft TRS-80 Level II Basic and its derivatives including Apple, Pet, KIM, Heathkit, and many others. Its very unique concept begins with a number of short demonstration programs that derive for the user ALL Basic functions' CALL addresses in ROM plus a number of chapters demonstrating their use in simple assembly-language programs.

Though this reviewer could not write a double-precision arithmetic, trigonometric, log, exponent, etc., program in less than about three full pages of assembly language, he was able to do so in minutes, with only a few lines, after digesting this easy-to-read handbook.

Any knowledgeable Level II Basic programmer, with only a smattering of assembly language experience, will find this new approach to assembly language programming saving them 6 months to a year's study and practice on their way to mastering this heretofore difficult subject.

The handbook is written in a very readable informal style, and includes questions and answers for each chapter that allows each reader to self-program their progress and set their own pace. An all-base conversion program is included as a learning aid. This is the first conversion program we have seen that includes both-way conversions for: decimal-binary-hex-split decimal-split hex, up to 65535 decimal. It alone is worth the handbook's price.

Highly recommended and a **MUST** for every TRS-80 bookshelf.

**REVIEW:  
Math-Pak-1  
from Edu-Ware**

Anyone looking for programs to tutor children in arithmetic should consider this one.

It is considerably more elaborate than Laidlaw's People's Software opus tape either Level I or II) in the way it handles addition and subtraction and in the way it comes up on the screen, and is a bit more cumbersome in that the user must load four programs instead of just one.

When the first program comes up on the screen the Edu-Ware graphics are very impressive. By the time we had gone through three more modules and were repeating number one, we were less impressed. These graphics, however, can easily be disabled by tinkering with the coding.

Addition and subtraction modules are very insistent that the user follow what may be the current method of adding, with precision. What digit is left over from adding the last column of figures? What is the remainder? (REMAINDER?) What digit is left over from the next column? Remainder? It won't accept a non-integer final answer. It wants the user to follow that format with precision. We got a 53 per cent from the first stage of two-digit, two-item additions. I even did better in school!

It is suggested that parents not familiarize themselves with the tape in the presence of children.

Subtraction is handled the same way but multiplication and division ask only for final answers. This was somewhat a letdown, after finally mastering remainders in addition! Multiplication and division are so much more complex than addition and subtraction, it would seem they too would benefit from a task-by-task approach.

Math-Pak-1 is \$14.95 from Edu-Ware, Box 808 Maynard MA 01754. Discounts to 50 per cent are available those purchasing five or more units. —WM  
(Circle CE on free-information form)

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A versatile and powerful mailing program to print labels by sequential coding: zip, city, state, customer ID code, even last name. Sorts by any code in minutes and stores sequentially in a single string (approx. 1500 records per cassette) includes AUTOPRINT. Supplied on diskette.

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In the Jan-Feb 1980 issue of the 80-U.S. Journal you will find a Text Editor, complete with on-screen editing, written in BASIC, and it's for both the Mod I and Mod II TRS-80. There is also a Lower Case Mod, without hardware modification, which is a simple, short BASIC routine! As if that weren't enough, there is also a complete listing for a "College Selection" program, a Model Rocket Design & Performance program and a Cassette Library (index) program! There is an article on the Exatron Stringy Floppy, a discussion of CP/M and in Assembly Language, a program which allows

you to define Keyboard Macros. Plus all the regular features of course, with tutorials, New Products, Reviews and the Business Section. We call it our "80-cubed" issue - 80 pages, in 80-U.S. for 1980! It isn't called the "TRS-80 Users Journal" for nothing, it really is just that! It is published bi-monthly, and costs \$16.00 per year in the US. Get a sample current issue (first class mail) for just \$3.00. Use your VISA or Mastercharge and call (206) 475-2219 today! Or, send check or Money Order to: 80-U.S. 3838 South Warner Street, Tacoma, Washington 98409



## Put some life back into your TRS-80!

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### BOOK REVIEW:

## Here's a book that explains SUPERZAP

TRS-80 DISK and OTHER MYSTERIES by H. C. Pennington, 130 pp, soft cover 8 1/2 x 11, \$22.50.

By BOB WARD

1037 S. Idelwild, Bloomington CA 92216

In recent weeks, the main topic of discussion at TRS-80 user groups around the country has been "Have you seen Pennington's book yet?"

The book, TRS-80 Disk and Other Mysteries, has proven more popular than a copy of Playboy at summer camp. The first printing sold out before the first ads appeared in the magazines, and advance orders for the next printing indicate that the book might well be an acceptable alternative investment if you missed the boat with gold.

To the user who has a large stack of vital disks that have become unreadable, for one reason or another, the book may well be worth its weight in gold, even at today's prices.

With the book in one hand and a damaged disk in the other, the reader experiences a heady sensation of power—as if he has the ability to leap entire sectors at a single bound; stop bad parity errors with his bare hands;—is it a bird?? is it a plane???? no—it's SUPERZAP!!!!

The book is much more than a simple "how-to" book, it gives the novice programmer a relatively painless insight into binary and hexadecimal notation, then proceeds to explain exactly how the disk is laid out, so the reader is never left to wonder how or why a particular zap is applied to correct such problems as:

- unreadable directory
- accidentally "killed" file
- direct statement in file
- electrically damaged disk
- physically damaged disk
- bad parity errors
- "lost" Electric Pencil files
- and much, much more.

The book is profusely illustrated by the author, and all "fixes" are amply documented with directory printouts, graphs, charts and diagrams.

(Note: We also know that ...Mysteries was TRS-80, with assist of Electric Pencil and Spinwriter. ED)

### SOFTWARE REVIEW:

## X-Wing II, Back-40

By PAUL SEIDNER

X-Wing II by Chris Freund, \$9.95 from The Software Exchange, 6 South st., Box 68, Milford NH 03055.

X-Wing II is a simulation of the film Star Wars in which you must combat enemy fighters and find the exhaust port and blow it up. Hopefully, this will cause a chain reaction and destroy the death star.

Unlike the original X-Wing simulation, the enemy shoots back. Also, you can visually see the enemy trench.

While you are in the trench you must be wary of the enemy ship behind you. You can see him by a radar which is on the screen. If the enemy gets directly behind you, you had better move or else you will become nonexistent.

Once you get within the range of the death star, a crosshair shooting device appears and you must shoot your torpedo when all the lines converge. If you are successful, you will win.

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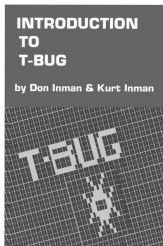
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## Announcing—

Have you heard about the \$15 Pascal compiler?

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At last your TRS-80 can run Pascal too! The Chung/Yuen "tiny" Pascal is fully implemented for Level II TRS-80, 16K and up. You no longer need be left out of the growing group of Pascal users, because People's Pascal gives you everything you need to write structured Pascal programs:

- tiny Pascal compiler
- complete text editor for writing your programs
- complete tiny Pascal monitor
- sample Pascal programs
- user's manual (TRS-80 Computing issue 1:4)

People's Pascal is both a powerful, structured language and "CPU expeditor". People's Pascal programs execute at least four times faster than Basic, and often eight-times faster! Special functions open up the complete graphic capability of TRS-80. You now have the means to write those dazzling, impressive, high-speed graphics programs that are great for games, plotting, statistics, etc.

For the serious computerist, side two of People's Pascal II (tape 6) contains a larger compiler and complete source to the compiler, written in Pascal! This means you can re-compile the compiler, making changes, adding features, etc. (but this will take at least 36K RAM and a solid knowledge of programming).

With the complete People's Pascal operating system, you can save and load both source (Pascal) programs, and compiled programs, to or from cassette tape. This means that once you have de-bugged a program, you can save the P-code (compiled program) and thereafter, to run the program, you need only load the super-fast P-code.

Here is a partial list of People's Pascal features: recursive procedure/functions • for (loop) • case if/then/else • one-dimensional arrays • write • read constant • repeat/until (loop) • "peek & poke" • plot (graphics for TRS-80)

—DEALER INQUIRIES INVITED—

People's Pascal I (tape 3), is written in Basic, implemented for TRS-80 by John Alexander of Berwick Australia. It compiles more slowly and is harder to use, but includes instructions for converting to disk. People's Pascal II (tape 6) is entirely by the Chung/Yuen team and is a further development stage of their concept. Full documentation included.

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All cassette versions of programs are somewhat simplified compared to diskette versions due to cassette limitations. Cassette programs require Level II and 16K memory. Diskette versions require 32K for TRS-80 and 24K for North Star.

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The Computing Teacher is a journal for educators interested in teaching using computers and teaching about computers. It is aimed mainly at the precollege level, elementary; and secondary school. Each issue carries material of interest to elementary school teachers, to secondary school teachers, and to teachers of teachers.

The Computing Teacher is published by the International Conucil for Computers in Education, witch is a non-profit corporation dedicated to the increased and improved use of computers in education. The journal also carries material on use of calculators.

The Computing Teacher will publish six issues during the academic year 1979-1980, and seven issues during the academic year 1980-1981. The publication is now in its seventh year.

Subscription Rates: \$8 for six issues.

\$16 for thirteen issues.

Foreign subscriptions, including Canada, add \$.75 per issue to defray added mailing and handling expences.

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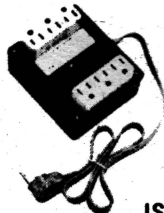
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### PRACTICAL SOFTWARE™

by DATA ASSOCIATES, Box 882, Framingham, MA 01701

### PRODUCT REVIEW:

## \$12.95 Cord is fix for tape loading

The past issue of S-80 Bulletin was out only a few days when we received a note from GB Associates telling us about their \$12.95 C-Loader, which is designed to do the same job as the more expensive Data Dubber and Acu-Data digitizers.

These handy devices connect between the user's tape deck and TRS-80 ear phone jack and convert the analog audio signal to a square wave similar to the one TRS-80 outputs to tape during CSAVE.

In the past issue we found these devices loaded previously-unloadable tapes and added a dimension of reliability not previously found in TRS-80 tape operations.

We were very excited about C-Loader, and ordered two immediately. Two, because TRS-80 tape recordings are rather flat (unsymmetrical) either in the positive or negative cycle of the sine wave, and C-Loader comes in two varieties, positive and negative. The two-for price is \$22.95.

Do they work? I'll swear they do! We loaded some People's Software tapes that had tested bad!

We were not, however, able to load our notorious "What is it?" test tape, which defies any but the most exacting loading procedures. The two previously-tested loading aids loaded "What is it?", but not C-Loader. We speculate that one of the reasons the difficult test tape is so hard to load is that it contains wild level changes. These are flattened out by any of the devices tested in the previous issue, but C-Loader, being a passive device (no outside power), passes on all level changes to the TRS-80. As a matter of fact, we suspect it may even amplify them! This normally is of no importance. But there are limits!

We do not think the level changes observed in C-Loader output are a serious disadvantage for the product. Analog tape signals are level-sensitive largely because the computer input is a sine wave and not a square wave, and volume changes result in varied pulse width. With square waves, volume changes are not nearly so serious.

G. B. Jay of GB Associates says the devices are not outstanding for dubbing tapes from one recorder to another. We speculate that the level changes probably are to blame.

**OUR RECOMMENDATION**—Anybody who does not mind spending about \$50 for a loading aid, which certainly is more than a CTR-80 tape recorder is worth, might do better with Data Dubber or Acu-Data. A do-it-yourselfer might do better with E-Z Loader.

C-Loader definitely will improve tape-system performance by a great margin almost as much as the more expensive products. In a school or office, where there are a number of machines, the device should save a lot of money. A secretary "punching" Pencil tape does not need both positive and negative devices. A room full of secretaries—or students—make for big savings!

In our office, we require that people testing People's Software load reference tapes with a loading device. We also load TR Copy, which is used in place of CLOAD? in the testing procedure. Of course the tapes to be tested are loaded without loading aids!

Also, here at CIE we soon hope to be setting type from Electric Pencil tapes and disks. We plan to use a loading aid on each of these tape systems, and C-Loader should be ideal for that application. — WM C-Loader, \$12.95 each from GB Associates, box 3322, Granada Hills CA 91344. Model 800 generally is for CTR-41 tapes, Model 810 for CTR80. Sometimes this has been found to be reversed. buy both devices for \$22.95, postage paid. California residents add 6 per cent tax; for First Class mail, add \$1.

Like additional copies of S-80 Bulletin for your club, school, store, etc? Just drop us a card, letter, or phone (714) 757-4849. Be sure to tell us how many copies you can use.

### PERSONALS

**PERCOM DISK** — I am interested in hearing from people who have experience with it. Charles Schilling, 7435 W. Silver Spring Dr. Milwaukee, WI 53218.

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**TELEX SUBSTITUTE**—Why not use TRS-80 as a Telex? Anybody with information please contact John Shell, Basic Education, 2772 S. Randolph st, Arlington VA 22206 (703) 578-0407.

### PUBLICATIONS

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### STORES

**SAN CARLOS, CA**—Practical Applications, 1313 Laurel st., Suite 15, zip 94070 (415) 592-6633.

**DENVILLE, NJ**—Lashen Electronics, 21 Broadway, zip 07834, 627-3783.

### SUPPLIES, TAPE ACCESSORIES

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### TAPE DUPLICATION

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### UTILITY PROGRAMS

**DECIMAL-BINARY** Hex-Split Decimal-Split Hex both-way conversion pgm to 65K: \$10. disk-cassette ppd. Richcraft Engineering.

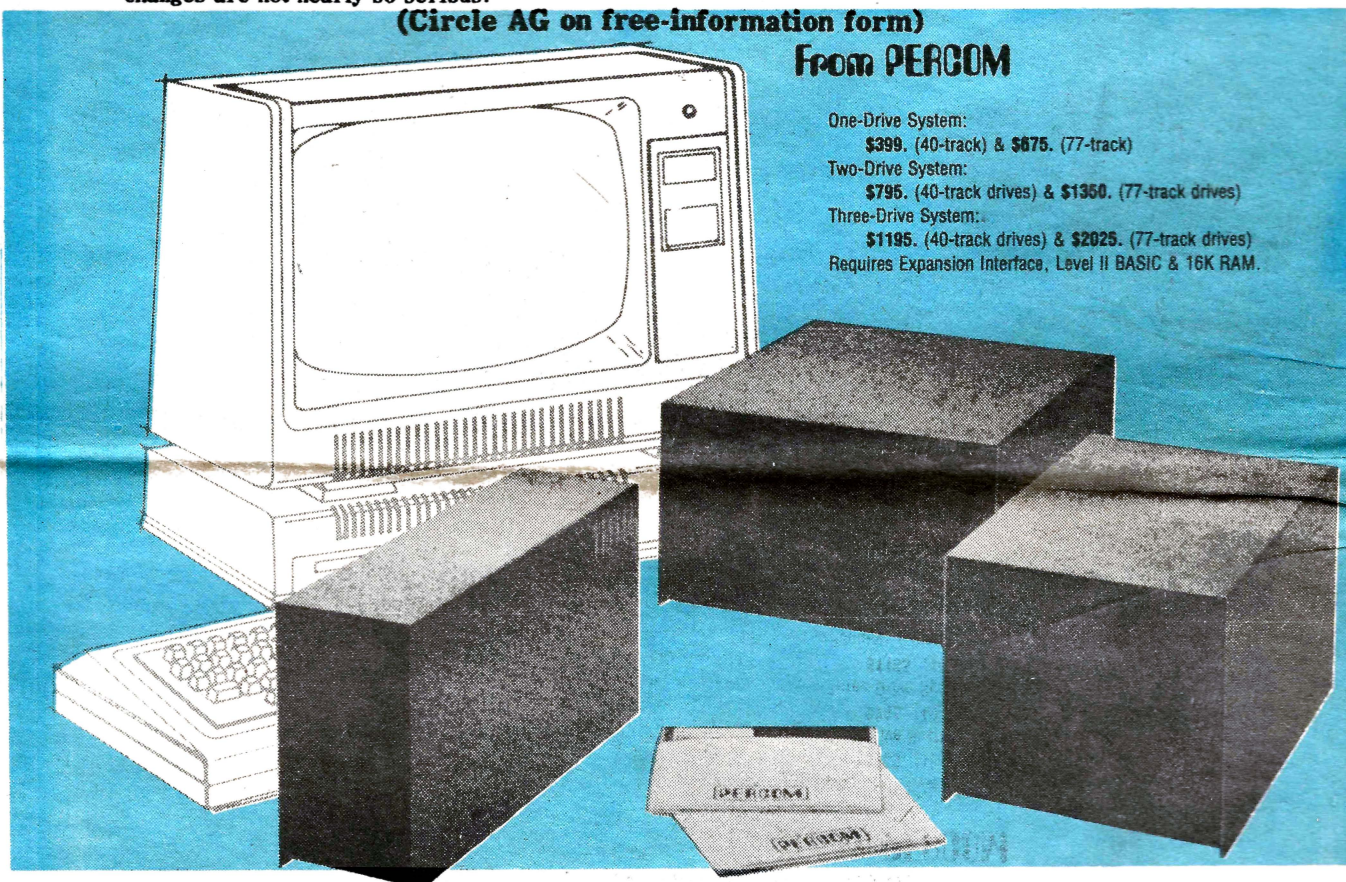
**COPY PROGRAMS** — MLCOPY - System Tape allows placing any number of System Tapes on one cassette - \$14.95 pp. Personal Computer Service.

**DISASSEMBLER** — Basic six-part program - Edit, Monitor, Disassemble & more - \$14.95 pp. Personal Computer Service.

**MEMORY TEST** — Lineprinter-screen-screen-lineprinter, People's Software Tape 5 Lev. 2, \$7.50 + \$.50 postage, from CIE.

### LOW-COST BULLETIN CLASSIFIEDS

Classified advertisements are just three lines for \$10 (minimum order per month). Subheads are provided as needed, in reverse type. Single lines are allowed, which may refer to a vendor, listed under a vendor subhead (thus advertisers are spared unnecessary repetition).



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( ) Tape 1, Lev. I, 24 programs, \$8 (\$8.45 in CA)  
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